Bermudagrass Management - Nitrate Leaching

Why does it matter?

Nitrate is a form of nitrogen (N) that can be lost from soil through leaching with excessive precipitation.

Nitrate leaching is an economic burden to producers and an environmental limitation to society from the subsequent deterioration of water quality.

What was done?

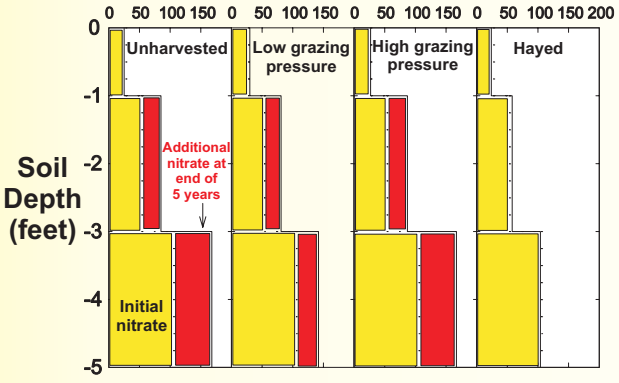
Soil was sampled yearly from 'Coastal' bermudagrass pastures managed in 4 different ways following cropland, representing a gradient in:

	high	hayed monthly
forage utilization		high grazing pressure
		low grazing pressure
	low	unharvested

What was found?

At the end of 5 years, some accumulation of nitrate occurred in the lower rooting zone (1- to 3-ft depth) and in the zone below rooting (3- to 5-ft depth) in all systems, except under haying. There was little evidence for significant loss of nitrate through leaching, despite application of 240 lb N/acre/year. Uptake of N by bermudagrass was efficient.

Cumulative Soil-Profile Inorganic N (lb/acre)



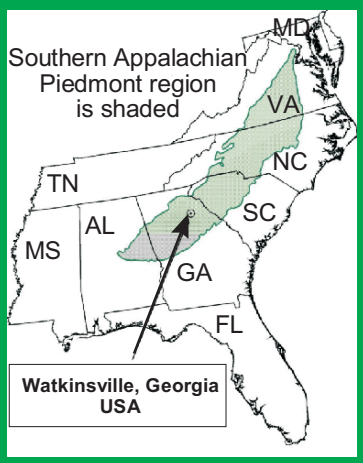
A full description of this research can be found in the article:

Franzluebbers AJ, Stuedemann JA, 2003. Bermudagrass management in the Southern Piedmont USA. VI. Soil-profile inorganic N. Journal of Environmental Quality 32: 1316-1322.

What's the impact?

Even with moderately high N application, bermudagrass pastures were efficient at preventing nitrate leaching, because of vigorous growth habit.

USDA Agricultural Research Service



J. Phil Campbell Sr. Natural Resource Conservation Center

1420 Expt. Station Rd.
Watkinsville GA 30677

Tel: 706-769-5631
Fax: 706-769-8962
www.spcru.ars.usda.gov

Research Team

Lead investigator
Alan Franzluebbers
afranz@uga.edu

Collaborators
John Stuedemann
Steve Knapp
Eric Elsner
Dwight Seman

Research from the Soil Resource Management National Program

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